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U. S. DEPARTMENT OF AGRICULTURE.

REPORT

OF THE

ACTING CHIEF OF THE BIOLOGICAL SURVEY

FOR

1901.

BY

T. S. PALMER.

[From Annual Reports, Department of Agriculture.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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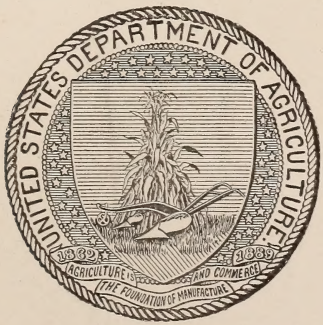

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REPORT OF THE ACTING CHIEF OF THE DIVISION OF BIOLOGICAL SURVEY.

U. S. Department of Agriculture,
Division of Biological Survey,
Washington, D. C., September 30, 1901.

Sir: I have the honor to submit herewith a report of the work of the Biological Survey for the fiscal year ended June 30, 1901, with outline of work for 1902, and recommendations for 1903.

Respectfully,

T. S. Palmer,
Acting Chief.

Hon. James Wilson, *Secretary.*

WORK OF THE YEAR.

At the beginning of the year the assumption of the varied duties connected with carrying out the act of May 25, 1900, commonly known as the Lacey Act, necessitated some reorganization of the work of the Biological Survey. The Division is now practically divided into three sections, the work being distributed as follows: (1) Biological surveys and investigations of geographic distribution of mammals and birds—under the immediate charge of the chief of the Division; (2) investigations to determine the economic relations of birds—in charge of Prof. F. E. L. Beal; (3) supervision of matters relating to protection of game and importation of foreign birds and animals—in charge of the assistant chief.

FIELD WORK.

During the year the field work necessary in making biological surveys and in investigating the distribution of mammals and birds was carried on in four States and Territories—California, Texas, Alaska, and New Mexico; also in Yucatan, Mexico; and in Athabasca, Keewatin, and Mackenzie, Canada. In several of these regions the work was a continuation of that begun several years ago. The biological survey in California, outlined in the report for last year, was conducted chiefly in that part of the Sierra Nevada lying between Lake Tahoe and the Yosemite Valley. Some work was also done in the northern Sierras between Beckwith Pass and Oroville, in the Coast Range near Mount St. Helena, and, during the spring of the present year, near Baird, Shasta County. The plans for this season contemplate a resumption of the work in the Sierras from July to October.

The work outlined for Alaska, in charge of W. H. Osgood, was restricted to the region about Cook Inlet. A report on this expedition has been completed for publication as North American Fauna No. 21.

For several years past field work has been progressing in the Southwest, with the object of making a comprehensive survey of the State

of Texas. It has now reached such a stage that probably by the close of this season sufficient data will have been secured to warrant the publication of a preliminary report. The field parties, as heretofore, were in charge of Vernon Bailey, chief field naturalist. The section of the State covered this year included a line from San Angelo to the Pecos River and the region west of the Pecos from the Rio Grande to the New Mexican boundary. The higher mountains lying within this region, such as the Chisos, Davis, and Guadalupe ranges, which vary in altitude from 8,000 to 9,500 feet, and the summits of which are covered with coniferous forests, received particular attention. The Chisos Mountains, a detached range near the Rio Grande, proved to be of especial interest, since they were found to be inhabited by several Mexican species which had not been previously detected in the United States. Some work was also done in northern Texas and in New Mexico, with a view to filling gaps in the field work of previous seasons. The investigations in Mexico, in charge of E. W. Nelson, were continued, the State of Yucatan being the field of operations. Several points in the interior were visited, and a trip was made to the island of Cozumel on the east coast. Important collections of mammals and birds were secured, among which those from Cozumel are of special interest.

The explorations in the Hudson Bay region, outlined in the last annual report, were successfully carried out by Edward A. Preble. The party visited several of the Hudson Bay posts and succeeded in penetrating to a point some distance north of Fort Churchill on the west side of Hudson Bay. The specimens collected have been partially examined, and a report on the trip is now in course of preparation. A similar trip was planned for the spring of 1901, and the party left Edmonton, Alberta, about May 1, with instructions to proceed northward by way of Athabasca River to Great Slave Lake, making stops at several points along the route. The material gathered on these two expeditions will be of unusual interest, not only in the study of the distribution of species occurring along the northern border of the United States, but also for comparison with the material obtained in similar field work in southern Alaska. Mention should be made of the cordial cooperation on the part of the Hudson Bay Company in arranging for these two trips and in furnishing means of transportation. Without this cooperation it would have been impracticable for the field parties to have penetrated far into the regions to which they were assigned.

ECONOMIC RELATIONS OF BIRDS.

The total number of bird stomachs in the collection June 30, 1901, was 36,780, an increase of 2,483 over the number that had been received to June 30, 1900. Of these, 2,236 were examined during the year as against 1,989 examined during the previous year. The number of stomachs examined in each of the principal groups was as follows:

Thrushes	641	Flycatchers	141
Titmice	326	Swallows	125
Sparrows	297	Miscellaneous	262
Orioles	224		
Woodpeckers	220	Total	2,236

The data obtained from the examination of the 297 sparrow stomachs were utilized in the report on the food of sparrows which has been in course of preparation for several years but is now completed. Spe-

cial attention has been paid to the food of orioles, woodpeckers, flycatchers, and swallows, with a view to supplementing former reports in the case of the first two groups and preparing preliminary reports in the case of the last two.

More than 25 per cent of the stomachs were examined in connection with the preparation of a report embodying the recent field investigations conducted by Dr. S. D. Judd, which will shortly appear.

Numerous complaints have been received during the past few years concerning the damage done to fruit on the Pacific coast by the house finch (*Carpodacus mexicanus frontalis*), blue jay (*Aphelocoma californica*), western robin (*Merula migratoria propinqua*), and other birds. In May of the present year Prof. F. E. L. Beal was dispatched to California to visit the principal fruit-growing sections of the State and to make a personal investigation of the depredations in the orchards. Professor Beal first made his headquarters at Haywards, Alameda County, studying the conditions in the various fruit-growing sections about San Francisco Bay, observing the birds at the time when the fruit was ripening, and collecting material for study in the laboratory. He also visited southern California and the orchards and vineyards in the vicinity of Fresno in the upper San Joaquin Valley. The data obtained through these investigations will throw much light on the economic status of the birds studied in California, but the amount of material thus far received indicates that several months will be required for its examination and the preparation of the results for publication.

THE LACEY ACT.

In carrying out the provisions of the Lacey Act the Department has been brought into close relations with several of the other Executive Departments, with State officials, and with game-protective associations throughout the country. Four of the Executive Departments are now cooperating in the enforcement of this law—the Treasury Department in carrying out regulations for the importation of foreign birds and animals, the Department of the Interior in preventing illegal shipments of game from the Indian Territory, the Department of Justice in prosecuting violations of the Federal statute, and the Department of Agriculture in assisting in the enforcement of the law, issuing permits for the entry of foreign birds, and collecting and disseminating information concerning birds and game.

In the absence of an adequate appropriation, which would admit of carrying out all the provisions of the law, the Department has devoted its attention largely to the educational side of the work as the one likely to yield the best results in proportion to limited expenditures. In pursuance of this policy information concerning game laws has been collected and published in the form of popular bulletins, and aid has been freely rendered to all efforts to arouse public interest in the protection of birds and game. In the publications the more important details of the various State laws have been arranged in a form convenient for comparison, and a comprehensive definition of game, a uniform plan of stating close seasons, and a regular sequence of treating of the various kinds of game have all been adopted. These details tend to simplify many of the complexities of game legislation. The demand for the published bulletins and for special information on game protection has been unexpectedly large and is increasing to such a degree that it is becoming more and more difficult to meet all requests. The interest in bird protection aroused through the passage of the

Lacey Act has extended to all classes and to all sections of the country. Never before has so much attention been given to game legislation, and intelligent interest in the subject has been clearly exemplified in the numerous improved game laws enacted at the recent sessions of the State legislatures. Efforts have been made to place the subject on a higher plane and to secure greater uniformity in the laws of adjoining States. In several instances these efforts, in which national organizations have cooperated with State legislatures and officials, have met with marked success, as shown by the enactment of a practically uniform law for the protection of insectivorous birds in eight States and the District of Columbia. Greater uniformity confers a twofold benefit: It makes the State laws far more effective and it strengthens the Federal statute which rests upon these local laws as a basis. Thus, it can safely be said that the Lacey Act has been materially strengthened as a result of the legislation of 1901.

ADDITIONAL GAME-PROTECTIVE LEGISLATION NECESSARY.

The Federal statute has not only been the means of giving greater efficiency to local laws, but it has brought to light many weak points in both Federal and State laws which should be remedied by further legislation. Especially is this true of the Federal statutes relating to Alaska, the Indian Territory, and the forest reserves. Alaska has practically no game law; the Indian Territory is protected only by a statute enacted in 1832 which fails to meet modern requirements; and the forest reserves are greatly in need of a law which will either make them game preserves or provide for the establishment of game refuges in certain parts of the reserves suitable for this purpose. These Territories and reservations constitute the natural ranges of most of the big game now remaining in the United States, and with adequate legislation may be made the means of preserving certain species indefinitely.

IMPORTATION OF FOREIGN BIRDS AND ANIMALS.

With the cordial cooperation of the Treasury Department a system for keeping account of and exercising control over wild animals and birds imported from foreign countries was devised and put into operation at the beginning of the fiscal year. Under this system, permits issued by the Department of Agriculture must be presented to the proper customs officers at the port of entry before the animals or birds can be admitted. Large shipments and those containing species whose identity is in doubt are subject to examination by special inspectors, and quarterly reports of actual entries from customs officers, transmitted through the Treasury Department, furnish a check on the operation of the law.

In view of the fact that the law was unknown to many importers at the time it went into effect, that the importations were often made at remote ports of entry, and that in many cases a delay of a few hours might have meant serious loss in the case of tropical animals arriving at northern ports during the winter, it is gratifying to note that only one or two complaints have been received of losses due to delay, and that for these the Department was not responsible. Everything possible has been done to facilitate prompt entry. Arrangements have been made by which permits may be had on telegraphic request, so that within an hour after the receipt of the request the collector of

customs at any port of the United States can be notified that the permit has been issued. Special inspectors, who can, when necessary, examine consignments immediately upon arrival, have been appointed at six of the most important ports, viz, Boston, New York, Philadelphia, Baltimore, New Orleans, and San Francisco. Finally, the list of species which may be imported without permits has been materially extended. During the first three months after the law went into operation permits were required for practically all foreign animals, birds, and reptiles. On September 13, 1900, however, an order was issued by the Secretary of Agriculture, which exempted on and after October 1, 1900, 30 of the largest and best known animals, 3 well-known groups of birds, and all reptiles. The object of this order was to avoid the trouble and annoyance incident to securing permits for the importation of well-known harmless species. It was intended that this list should include no species that could not be identified without the aid of experts, but as a few animals requiring permits have been brought in under the names of one or two species in the excepted list, further slight modifications may be necessary.

During the year 186 permits were issued, covering the entry of about 350 mammals, 10,000 birds, and 38 reptiles. The reptiles include only those arriving during the first three months of the fiscal year, and the number of mammals is much smaller than it would be had there been no order of exemption. Among the birds were 626 pheasants, 4,237 quail, about 1,000 other game birds, and 4,147 cage birds. Among the importations of special interest may be mentioned a young giraffe from west Africa, several chimpanzees, and some Cuban flamingoes.

The numbers given are somewhat in excess of actual importations. Applications for permits frequently contain merely estimates of the number of animals or birds expected, and, through deaths en route or failure on part of foreign agents to fill orders, the number actually arriving in any consignment is apt to fall short of that designated in the permit.

The law has accomplished the main object for which it was enacted, namely, the exclusion of the mongoose and similar pests. Moreover, through its enforcement certain important information has been obtained regarding the importation of live game birds and of cage birds for exhibition. It appears that a considerable trade in Old World pheasants is conducted with the Province of Ontario, the birds being imported chiefly by way of Detroit and Niagara Falls; there is also a regular trade in live Chinese quail at the port of San Francisco, where more than 4,000 birds from Hongkong were brought in for market purposes and sold to Chinese residents of the city between December, 1900, and June, 1901. Cage birds are imported chiefly from Germany, Australia, China, and Japan, through the ports of New York and San Francisco, and many parrots from Mexico and Central America are landed at New Orleans and San Diego.

So far as known to the Department, only 3 specimens of the mongoose were imported during the year. One of these arrived at Philadelphia on the steamer *Urania*, from Jamaica, on May 20. Within twenty-four hours it was killed and deposited as a specimen in the Philadelphia Academy of Sciences. A second mongoose reached San Francisco in June, 1901, and was promptly destroyed. A third was reported from Los Angeles, Cal., in June, but investigation showed that it had arrived several months previously from some port on the Gulf coast, and had died in January. So far as known at present there are no live speci-

mens of the mongoose in the United States, except a few in confinement in zoological gardens. A strict enforcement of existing regulations should effectually prevent the entrance of this or any other pest.

INTERSTATE COMMERCE IN BIRDS KILLED OR POSSESSED IN VIOLATION OF LOCAL LAWS.

During the year numerous cases of violation of game laws have been called to the attention of the Department, of which 57 have received careful investigation. Of those taken up, 8 resulted in conviction,[1] 33 are awaiting action by the courts, 8 are still in the hands of the Department awaiting further evidence, and 8 have been dropped for want of evidence. These cases originated in 12 States and Territories, viz, Arkansas, Indiana, Indian Territory, Iowa, Kansas, Maryland, Missouri, New Jersey, Oklahoma, South Dakota, Tennessee, and Texas, and involved the seizure of 11,940 quail, 974 prairie chickens, 387 miscellaneous game, and 2,608 plume birds, or a total of nearly 16,000 birds. Of the 41 cases acted upon by this Department, 14 were referred to local authorities and 27 were transmitted to the Department of Justice for prosecution in the Federal courts. As a rule, the causes of action have arisen through shipment of birds killed in violation of local laws, and the large proportion of cases still undisposed of at the close of the year is due to the fact that in most instances attention was not called to the offenses until several months after they were committed; moreover it frequently happened that the most important fact—the shipper's name—was unknown, and the Department was called upon to assist in obtaining the necessary evidence, often a very slow and tedious process.

The aid of the Department has been sought in connection with the enforcement of the provisions against illegal shipment of game to a greater extent than was anticipated. Such aid has been freely rendered, though it has been the aim to confine action merely to supplementing the efforts of local authorities, and to refer cases to State authorities for action, whenever possible. The provisions of the law are such that violation of the Federal statute necessarily involves a previous violation of a local law, and it is possible, therefore, to prosecute cases either in local or Federal courts. Whenever conditions have been favorable to success in State courts, or the evidence in the hands of the Department has been such as could be used in a prosecution in such courts, the case has been promptly turned over to local authorities; otherwise it has been referred to the Department of Justice.

In this connection mention should be made of the cordial cooperation of Federal and State officers, as well as railroad and express companies, game protective associations, and various individuals. These have rendered every assistance in their power in the enforcement of the Federal law. Important aid has been received from the State game commissioners or wardens of Illinois, Iowa, Maine, and Michigan, by the American, Pacific, United States, and Wells Fargo Express companies, and by the Game and Fish Protective Association of Maryland, the League of American Sportsmen, and the American Ornithologists' Union.

[1] Three of these convictions have been obtained since July 1, 1901. Mention should also be made of five other convictions secured in the State courts of Iowa. In these cases the birds were seized in transit and the evidence was referred by the deputy United States marshal directly to the State game warden for action.

Of the cases above mentioned, 54 involved game birds and 3 nongame birds. The first case under the Lacey Act reported to the Department was one involving the shipment of 72 young prairie chickens from St. Louis to Chicago in July, 1900. These birds were shipped under a cipher address, without statement of contents on the package, and were intercepted in transit, so that neither the carrier nor the consignee could be held responsible, and as the shipper could not be located the case was dropped. The first case acted upon by a Federal court involved the shipment of a small package of millinery samples (containing among others 7 gulls and terns) from Brownsville, Tex., to New York City in December, 1900. The shipper was indicted, promptly plead guilty, and paid his fine, and the case was concluded within a few weeks after it was first reported.

A case which perhaps attracted more general attention than any other was one based on information received by the Department in September, 1900. The matter was referred to the local authorities in Baltimore for action, and resulted in the seizure and confiscation of 2,600 plume birds, offered for sale in violation of the State law of Maryland. The case was prosecuted through three courts by the Maryland Fish and Game Protective Association, and the dealer was compelled to pay a fine of $100 and costs. This action attracted widespread attention in the millinery trade, and brought the Department into correspondence with the leading wholesale millinery firms in Eastern cities. The wholesale houses in Baltimore promptly withdrew gulls and terns from sale, and assurances were received from the Millinery Merchants' Protective Association and from leading houses in Boston, New York, Philadelphia, and Baltimore that they would, so far as possible, withdraw from sale and discourage the use of these and other birds protected by local laws.

The effectiveness with which such cases can be disposed of under certain State laws is well illustrated by one instance in which, through the energy of the game warden of Iowa, a conviction was secured and the fine paid within three weeks after the evidence had been forwarded from the Department. Convictions have been secured in a majority of the cases involving illegal shipments from Iowa and the penalty imposed in each of seven cases was a fine of $100 and costs, and in another imprisonment for thirty days.

But the results of the enforcement of the law are not to be measured by the number of prosecutions or by the severity of the penalties imposed. Attention has been called to local laws which had long remained dead letters; the methods of shipping game and the devices resorted to in evading the regulations have been investigated, and information thus secured can be used in preventing similar violations; it has been shown that evidence of illegal shipments that will insure conviction can be obtained a thousand miles from the shipping point and months after the offense is committed; and, finally, it has been demonstrated that shippers are no longer safe as soon as their game has crossed a State boundary.

PUBLICATIONS.

The publications of the year include 2 numbers of North American Fauna (Nos. 18 and 19), 2 bulletins (Nos. 13 and 14), 2 articles in the Yearbook of the Department for 1900, 6 circulars (Nos. 28–33, inclusive), the report of the Division for 1900, and reprints of one of the circulars and three previous publications.

The two numbers of North American Fauna issued were No. 18, "Revision of the pocket mice of the genus *Perognathus*," by W. H. Osgood; and No. 19, "Report of a biological reconnoissance of the Yukon River region," by W. H. Osgood and Dr. Louis B. Bishop. Both of these numbers, as well as Bulletin No. 13, on "Food of the bobolink, blackbirds, and grackles," by Prof. F. E. L. Beal, were mentioned as being in press at the time of the last report. Bulletin No. 14, on "Laws governing the transportation and sale of game," by T. S. Palmer and H. W. Olds, was issued in an edition of 5,000 copies, a number which would have been inadequate to meet the demand had it not been preceded by a 32-page circular (No. 31) containing an abstract of the matter presented in the bulletin, of which circular 15,000 copies were distributed. There is a large demand for publications concerning game, especially on the part of railroad and express companies, and in several instances the Department has received single applications for almost as many copies as were issued in the regular edition. Applicants are usually willing to purchase such reports, but under the present law there is no provision for sales in the quantities desired. As such publications are intended largely for the use of State officials and common carriers in order to secure better enforcement of the game laws, a liberal distribution is advantageous to the Department. An effort has therefore been made to secure as wide a distribution as possible by the preparation of special circulars and tables, which can be issued in large editions at comparatively small cost. The Department is not, however, in a position to meet an unlimited demand, and unless special provision for the purpose is made it will soon be unable to supply many applicants who need the reports and will put them to good use.

The Yearbook articles related to economic ornithology, and were entitled "How birds affect the orchard," by Prof. F. E. L. Beal, and "The food of nestling birds," by Dr. S. D. Judd.

The circulars, six in number, were as follows: No. 28, "Directory of State officials and organizations concerned with the protection of birds and game;" No. 29, "Protection and importation of birds under act of Congress approved May 25, 1900;" No. 30, "Wild animals and birds which may be imported without permits;" No. 31, "Information concerning game;" No. 32, "Directions for the destruction of prairie dogs," and No. 33, "Protection of birds and game—Directory of State officials for 1901."

The original edition (5,000 copies) of circular No. 31 was exhausted almost immediately, and it was necessary to publish reprints to the number of 10,000. Reprints of North American Fauna, No. 16, "Biological survey of Mount Shasta," and bulletin No. 12, "Legislation for the protection of birds other than game birds," were also necessary. Owing to the unabated demand for Farmers' Bulletin No. 54, "Some common birds in relation to agriculture," a tenth edition, of 20,000 copies, was issued during the year, which makes a total of more than 220,000 copies of this bulletin thus far printed since its first appearance in 1896.

ROUTINE WORK.

The routine work of the office has increased very largely during the year. The number of letters received was 6,540, and the number written about 4,000. This is an increase of more than 50 per cent over the number received (4,253) and mailed (2,041) in 1900. The miscellaneous office work includes examination and filing of reports, sched-

ules, and notes received from correspondents; distribution of several hundred schedules twice each year to migration observers; arrangement of reports and notes received from field naturalists; examination and recording of accounts; care of collections; examination and packing of specimens sent in for identification; forwarding supplies to field naturalists; bibliographical work; and preparation of reports for publication. During the past few months the valuable and rapidly growing collection of photographs taken by members of the various field parties has been rearranged and rendered much more accessible for reference, so that any print and its corresponding negative can be examined at a moment's notice. An important part of the work consists of issuing permits for the entry of foreign birds and animals, investigating complaints regarding violations of the Lacey Act, and answering inquiries concerning local game laws. This work is exacting, requires prompt and unremitting attention, and is constantly increasing. In the last annual report attention was called to the necessity for making some provision for handling the increased correspondence, but as yet no addition has been made to the clerical force, and the energy and ingenuity of the present force are frequently taxed to the utmost to meet the current demands promptly. The recommendation is therefore made that two additional assistants (one a stenographer) be provided for in the next appropriations.

OUTLINE OF WORK FOR THE YEAR 1902.

FIELD WORK.

The plans for field work for the current year, at least so far as this summer is concerned, have already been outlined in reviewing the work for the past fiscal year. They comprise a continuation of the biological survey in California in the High Sierra immediately about the Yosemite Valley and in the region farther south on the Kaweah and Kings rivers. In Texas, field work will be continued in the extreme western end of the State, and an effort will be made to prepare for publication the results of investigations conducted during the past two or three years. The work thus far outlined for Canada contemplates merely a completion of operations along the route from Edmonton, Alberta, to Great Slave Lake.

STUDIES OF THE FOOD OF BIRDS.

The large amount of material collected by Professor Beal in the course of his investigations in the fruit-growing sections of California will be examined in the laboratory, and a report on the results of this examination will be prepared for publication. This report should be of much value in aiding to fix the status of the birds that are charged with damaging California orchards.

A plan is also in contemplation for undertaking an investigation of the food habits of certain game birds as soon as sufficient material can be brought together. The results will doubtless be of value not only to the farmer, but more especially to persons who are interested in game preserves and in restocking covers or improving breeding grounds for the purpose of increasing the local abundance of game.

ENFORCEMENT OF THE LACEY ACT.

The inspection service necessary to prevent importation of noxious birds or animals will be strengthened and improved so far as means

at the command of the Division will permit, and will be extended in the near future to Hawaii. While, as a rule, every effort will be made to facilitate the prompt entry of foreign birds and animals, inspection at the principal ports will be increased, and no effort will be spared to prevent the introduction of species which are likely to prove injurious. In this service lies the chief protection against the introduction of the mongoose and of pests like the English sparrow. The losses which would occur if certain foreign species should once gain a foothold in this country would be enormous in comparison with the small expense necessary to maintain the service on an efficient basis.

The demand for information on game will be met, so far as possible, by the publication of reports on various topics connected with game preservation. A compilation of existing game laws, including the changes made during the present year, will be prepared, accompanied by tables showing in detail the close seasons for the various kinds of game, not only under State laws, but also by counties in the case of certain States which have many local regulations. Besides the investigation of the food of game birds, mentioned above, reports on shipment of game for propagation, on game preserves, and on introduced pheasants, are in contemplation. Much interest has been shown in the introduction of game birds into new localities, or into regions where they have become rare, and many applications have been received for quail and pheasants. The Department has also received offers of birds for introduction, and has been tendered the use of land for making experiments of this kind, but the distribution of game birds, or the acceptance of birds for experiment, has been prevented by lack of a specific appropriation necessary for transportation and maintenance. In view of the activity on the part of game associations and individuals in introducing quail and pheasants, it is an open question whether the introduction of these birds should not be left entirely to private enterprise, and the efforts of the Department devoted to other equally important species that have received comparatively little attention. Several valuable game birds of limited distribution, such as the California mountain quail (*Oreortyx pictus plumiferus*), the Arizona wild turkey (*Meleagris gallopavo merriami*), and the sharp-tailed grouse (*Pediœcetes phasianellus campestris*) would thrive in other regions, and are worthy of the attention of persons interested in introducing new species of game birds. While the Department can not at present make any experiments of this kind, it may be able to advise as to the introduction of these species, and to aid persons interested in such experiments in obtaining birds for propagation.

MIGRATION OF BIRDS.

Ever since its organization, the Division has been collecting data on the migration of birds, and Bulletin No. 2, published in 1888, under the title, "Bird migration in the Mississippi Valley," was based on observations made during the years 1884 and 1885. Since then schedules have been distributed regularly, and notes have been brought together, but until the present year no effort was made to prepare the accumulated data for publication. An arrangement has now been entered into with Prof. W. W. Cooke, the author of the bulletin mentioned, to devote a few months of the summer of 1901 to the elaboration of some of the notes on migration. As the time available for this work is limited, Professor Cooke has selected about sixty of the more important migratory land birds that breed in the United States

but pass the winter in the Tropics, and has undertaken to work out the winter distribution of these species, and ascertain, so far as data will permit, the routes they traverse in passing to and from their breeding grounds. This investigation promises to bring to light many facts of interest to the student of bird migration, and it is unfortunate that present appropriations will not permit a more complete elaboration of the data on hand.

In this connection it should be stated that much valuable material in the form of notes and original observations on birds and mammals has been brought together by the Division, but still remains unpublished. Provision should be made for publishing some of this material, which has been collected at considerable expense, so that it may be made generally available.

DESTRUCTION OF PRAIRIE DOGS.

During the year complaints concerning the depredations of prairie dogs have been received from about 325 correspondents in the plains region of the West. These complaints came from nearly 300 localities, distributed chiefly in the States of Colorado, Kansas, Montana, Nebraska, South Dakota, Texas, and the Territory of Oklahoma, and indicate that in many sections of these States the destruction of prairie dogs is one of the most serious questions confronting the farmer or cattle owner. In the last annual report attention was called to the necessity for a thorough investigation of the subject, and the need of making provision for carrying on the work; but the necessary appropriation was not made by Congress, and the Division is therefore unable, at present, to undertake a comprehensive study of the question.

Owing to the numerous complaints received, however, and the urgency of the demands for information on this subject, a preliminary investigation will be made in the States of North and South Dakota, Kansas, and Nebraska, and some work will also be done in Texas. The data thus far secured by the Division will be utilized in the preparation of a report to be published at an early date. The main problem is to ascertain the poison which may be used most effectively for this purpose, and the minimum cost at which prairie dogs may be destroyed under various conditions. It is well known that bisulphide of carbon will destroy the animals, but the high price at which it is sold in many places in the West prevents its use and gives rise to a general demand for a cheaper and equally effective poison. One great difficulty encountered in using poison is that prairie dogs feed mainly on herbage, and refuse ripe grain when grass or similar food can be obtained. The problem, therefore, resolves itself practically into three phases: (1) Obtaining bisulphide of carbon at lower rates; (2) discovery of some bait which will render the use of strychnine, cyanide of potassium, and similar poisons effective at any season; or (3) the discovery of some substance or combination of substances which will be cheaper than bisulphide of carbon or strychnine, and at the same time equally effective. On the solution of this problem depends the success or failure of many residents in the West who are attempting to cultivate lands in regions infested with prairie dogs.

Prairie dogs occur from Texas to Montana and from Kansas to Arizona, so that nearly a dozen States are interested in the destruction of the pest. This fact alone shows the importance of providing means for a thorough investigation of the whole question of prairie-dog destruction.

RECOMMENDATIONS.

The estimates for the fiscal year 1902 included an increase of $10,000, to provide for the additional work assigned to the Division. The increase actually appropriated was, however, but $2,500, of which sum $1,000 was made immediately available and was almost all expended before the close of the fiscal year. The increase available for the year 1902 was therefore practically reduced to $1,500, an amount which is inadequate to enable the Division to meet the many demands made upon it.

In submitting estimates for the fiscal year 1903 the following recommendations are therefore made: (1) An increase in the salary roll, to provide for two additional assistants, one a stenographer; (2) an increase of $10,000 in the fund for biological investigations, to enable the Division to enlarge the scope of its field work, to place the inspection service required by the Lacey Act on a permanent basis, to investigate more fully the various methods of destroying prairie dogs, to elaborate and prepare for publication material already received, and to collect data and publish reports on birds and on game protection in sufficiently large editions to meet the general demand.